Ephemeris for Physical Observations of Jupiter 1876.

By Mr. A. Marth.

0h G.M.T. 1876.	Angle of Position of ♃'s Axis.	Longitude of ♃'s Meridian turned to the Earth.	diff.	Latitude of the Earth above ♃'s Equator.	Latitude of the Sun above ♃'s Equator.	Annual Parallax.	
	°	°	°	°	°	°	°
Feb. 15	12·20	309·65		−3·13	−3·06	−10·52	
			4352·97				−·05
20	12·02	342·62		3·14	3·06	10·57	
			3·05				+·03
25	11·88	15·67		3·15	3·05	10·54	
			3·12				10
Mar. 1	11·76	48·79		−3·16	−3·05	−10·44	
			3·18				17
6	11·68	81·97		3·17	3·05	10·27	
			3·26				25
11	11·62	115·23		3·18	3·05	10·02	
			3·32				32
16	11·60	148·55		3·19	3·04	9·70	
			3·38				41
21	11·60	181·93		3·20	3·04	9·29	
			3·44				48
26	11·64	215·37		3·21	3·04	8·81	
			3·50				56
31	11·71	248·87		3·22	3·04	8·25	
			3·56				64
Apr. 5	11·81	282·43		−3·23	−3·03	−7·61	
			3·60				70
10	11·94	316·03		3·23	3·03	6·91	
			3·64				78
15	12·09	349·67		3·23	3·03	6·13	
			3·67				84
20	12·27	23·34		3·23	3·02	5·29	
			3·70				89
25	12·47	57·04		3·23	3·02	4·40	
			3·70				94
30	12·68	90·74		3·23	3·02	3·46	
			3·71				97
May 5	12·91	124·45		−3·23	−3·01	−2·49	
			3·70				101
10	13·15	158·15		3·22	3·01	1·48	
			3·69				102
15	13·39	191·84		3·21	3·00	−0·46	
			3·65				102
20	13·63	225·49		3·20	3·00	+0·56	
			3·59				102
25	13·87	259·08		3·18	2·99	1·58	
			3·55				100
30	14·11	292·63		3·17	2·99	2·58	
			3·49				98
June 4	14·33	326·12		−3·15	−2·99	+3·56	
			3·41				94
9	14·53	359·53		3·13	2·98	4·50	
			3·34				90
14	14·72	32·87		3·11	2·98	5·40	
			3·25				8

0^h G.M.T. 1876.	Angle of Position of ♃'s Axis.	Longitude of ♃'s Meridian turned to the Earth.	diff.	Latitude of the Earth above ♃'s Equator.	Sun	Annual Parallax.	
	°	°	°	°	°	°	°
June 19	14·88	66·12		3·09	2·97	6·24	
			3·17				79
24	15·03	99·29		3·07	2·97	7·03	
			3·07				72
29	15·15	132·36		3·05	2·96	7·75	
			2·98				64
July 4	15·24	165·34		−3·03	−2·95	+8·39	
			2·88				58
9	15·30	198·22		3·00	2·95	8·97	
			2·79				50
14	15·35	231·01		2·98	2·94	9·47	
			2·69				42
19	15·36	263·70		2·96	2·94	9·89	
			2·60				35
24	15·35	296·30		2·94	2·93	10·24	
			2·52				28
29	15·31	338·82		2·92	2·92	10·52	
			2·44				20
Aug. 3	15·24	1·26		−2·90	−2·92	+10·72	
			2·36				13
8	15·15	32·62		2·89	2·91	10·85	
			4352·28				06
13	15·03	65·90		2·87	2·90	10·91	

The following table gives for every even hour the motion of the "longitude of ♃'s meridian turned to the Earth," corresponding to the difference of the successive values 4353° or 12 revol. 33° in five days.

G.M.T. h	0 days. °	1 day. °	2 days. °	3 days. °	4 days. °	m	0 hours. °	1 hour. °
0	0·00	150·60	301·20	91·80	242·40	0	0·00	36·28
2	72·55	223·15	13·75	164·35	314·95	5	3·02	39·30
4	145·10	295·70	36·30	236·90	27·50	10	6·05	42·32
6	217·65	8·25	158·85	309·45	100·05	15	9·07	45·34
8	290·20	80·80	231·40	22·00	172·60	20	12·09	48·37
10	2·75	153·35	303·95	94·55	245·15	25	15·12	51·39
12	75·30	225·90	16·50	167·10	317·70	30	18·14	54·41
14	147·85	298·45	89·05	239·65	30·25	35	21·16	57·44
16	220·40	11·00	161·60	312·20	102·80	40	24·18	60·46
18	292·95	83·55	234·15	24·75	175·35	45	27·21	63·48
20	5·50	156·10	306·70	97·30	247·90	50	30·23	66·50
22	78·05	228·65	19·25	169·85	320·45	55	33·25	69·53
24	150·60	301·20	91·80	242·40	33·00	60	36·28	72·55

The Ephemeris is a continuation of that given for last year in the *Monthly Notices*. The assumed daily rate of rotation is =870°·60. The "annual parallax," or the difference of the Jovicentric longitude of the Sun and Earth, is reckoned in the plane

of *Jupiter's* equator. The position of this plane is assumed in accordance with Damoiseau's determination.

The planes of the orbits of the Satellites, so far as they can be deduced from the unsatisfactory data available, have at present the following inclinations to *Jupiter's* equator:—

1876.	Sat. I.	Sat. II.	Sat. III.	Sat. IV.
Jan. 6	0°·0092	0°·4452	0°·2062	0°·3354
Mar. 6	93	·4461	·2051	·3350
May 5	94	·4470	·2041	·3344
July 4	95	·4478	·2030	·3336
Sept. 2	0·0096	0·4486	0·2020	0·3326

and their corresponding ascending nodes, reckoned from the descending node of *Jupiter's* equator on his orbit, are the following:—

1876.	Sat. I.	Sat. II.	Sat. III.	Sat. IV.
Jan. 6	57°·2	63°·76	278°·03	330°·16
Mar. 6	49·6	61·70	277·59	330·26
May 5	48·0	59·65	277·11	330·34
July 4	46·4	57·62	276·60	330·41
Sept. 2	45·1	55·60	276·07	330·46

On the Proper Motion of Bradley's Stars.

By John J. Plummer, Esq.

As the necessity for the publication of an authoritative Catalogue of Stars to take the place of the now rather antiquated compilation of the British Association is daily becoming more apparent, some results which I have arrived at with the view of determining which of the brighter stars have had their places least accurately determined may be of interest. Since the publication of the British Association Catalogue in 1847, all the brighter stars have been so frequently and carefully observed that no doubt can be entertained regarding the accuracy of the places of them to be derived from modern authorities; but, owing to the fact that their proper motions must depend almost entirely upon the old observations of Bradley and Piazzi, inaccuracies in one or other of these catalogues would injuriously affect their places after even a few years' interval. It is perfectly well known that many of the proper motions of stars in the British Association Catalogue founded on a comparison of Bradley or Piazzi with Taylor and other modern observations are quite untrustworthy; and though many of these have been corrected by the later and more accurate investigations of Messieurs Main and Stone, there yet remain not a few instances in which no better results have been published. It is a question, therefore, whether the greater